

UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

UNITED STATES OF AMERICA

v.

HAOYANG YU,

Defendant

CRIMINAL No. 1:19-CR-10195

GOVERNMENT'S SENTENCING MEMORANDUM

The growing importance of trade secrets as a form of intellectual property makes their theft a particularly economically damaging crime. In a recent report, the Commission on the Theft of American Intellectual Property estimated that annual losses to the American economy caused by trade secret theft are over \$300 billion, comparable to the current annual level of U.S. exports to Asia. This same report found that trade secret theft has led to the loss of 2.1 million American jobs each year and that the illegal theft of intellectual property is undermining the means and incentive for entrepreneurs to innovate. This in turn is slowing the development of new inventions and industries that could raise the prosperity and quality of life for everyone. In another study, PricewaterhouseCoopers LLP and the Center for Responsible Enterprise and Trade found that the annual cost of trade secret theft may be as high as \$480 billion.

Protecting trade secrets has become increasingly difficult given ever-evolving technological advancements. Thieves are using increasingly sophisticated methods to steal trade secrets and the growing use of technology and cyberspace has made trade secret theft detection particularly difficult. The growing problem of trade secret theft has been acknowledged by industry, Congress, and the administration—with Attorney General Eric Holder stating during a White House conference in 2013, “There are only two categories of companies affected by trade-secret theft: those that know they’ve been compromised and those that don’t know yet.”

Senate Committee Report on the Defend Trade Secrets Act of 2016, pages 1-2, available at <https://www.congress.gov/congressional-report/114th-congress/senate-report/220>.

I. INTRODUCTION

On May 26, 2022, a federal jury convicted defendant Haoyang Yu of possessing a stolen trade secret, a violation of 18 U.S.C. § 1832(a)(3). This trade secret was the prototype design of a

high-innovation microchip often used by the military to power electronic warfare technology. Yu had stolen this trade secret in 2016, the same year in which the U.S. Senate published the report quoted above. Ex. 378. Yu looted this information – along with hundreds of other computer files containing valuable intellectual property – from his employer, Analog Devices, Inc. (“ADI”), one of the world’s leading microchip designers. He then deployed the information in building products for his own company, Tricon MMIC, LLC (“Tricon”), which marketed and sold microchips powered by this stolen intellectual property in direct competition with ADI.

This court will sentence Yu on June 1, 2023. For the reasons discussed in this memorandum, the government respectfully recommends that the court impose a 30-month prison sentence. This sentencing recommendation, which is nearly one year below the bottom of the applicable Sentencing Guidelines range, is based on all the considerations set forth in 18 U.S.C. § 3553(a). The court should also order the defendant, who profited significantly from his crime and who has the financial ability to pay, to remit a fine of \$235,000, approximately the gross income of his fraudulent business. Finally, as described below, restitution in this case is compulsory under the Mandatory Victims Restitution Act. Accordingly, the government asks that this court order restitution in an amount to be determined once ADI tabulates eligible expenses, including those relating to the defendant’s sentencing.

II. SUMMARY OF RELEVANT FACTS

This is a case of brazen and significant intellectual property theft. At the time of Yu’s arrest, Tricon was selling 15 different kinds of microchips and advertising another six as “coming soon.” Ex. 109 at 1, 6. However, none of these microchips was designed by or belonged to Yu. Instead, each microchip had been created through the hard work of his former ADI colleagues. Collectively, Yu’s stolen designs were the bulk of ADI’s catalog of power amplifiers, the

cumulation of 15 years of expertise, experiment, thought, and investment. Each of these ADI microchips represented hundreds of thousands of dollars in research investment. Each was a commercially successful product that could generate significant ADI profits. These chips were used in a variety of industrial and military end-products, including satellites, missiles, and cell phone towers. Three of the chips were export-controlled, meaning that, because of their potential military applications, the federal government regulated both which foreign entities could purchase them and how those entities could use them.¹ Violating both the law and his ADI contract, Yu stole these files by copying them from ADI's secure servers, renaming them after cartoon characters or as picture files, uploading them to his personal Google Drive account, and downloading them to his personal computer. There, he amassed a multi-million-dollar microchip library accessible from his kitchen table.

These 21 microchip designs were just the beginning of Yu's systematic and massive theft. In the same manner, the defendant also stole hundreds of other proprietary ADI files.² He stole modeling files and parameters, which allow designers to predict the performance of a chip before it is built. He stole the plans for many other chips that he hadn't yet manufactured or advertised, several of which had military uses. He stole layout databases, which contain the architectural blueprints for each chip. He stole schematics, which allow designers to simulate how a chip will operate. He stole data identifying ADI's customers, the prices they paid, the chips they bought,

¹ Those three chips were the HMC1022A, the HMC8325, and the ADL7003, the latter two of which Yu advertised as "coming soon." ADI advertises those chips as governed, respectively, by Export Classification Control Numbers 3A001.b.2.d, 3A001.b.2.g, and 3A001.b.2.h.

² Trial testimony established that "several thousand" files on Yu's hard-drive were bit-for-bit matches to those on ADI's servers and that this number excluded system files commonly found on most computers. Tr. 05/20 at 155:17—157:11. Here, the government conservatively estimates that several hundred were ADI property.

and the quantities they sought. In other words, in an extraordinary breach of his obligations to ADI and the law, Yu stole absolutely everything he needed to open a microchip design business without any work or investment whatsoever. Tricon's entire existence was built on information pilfered from ADI, one of the world's preeminent microchip designers. Indeed, without the information that he stole from ADI, Yu would have had to start his new microchip design firm with literally nothing but his own training and experience, which did not involve many of the sophisticated kinds of amplifiers he wanted to sell. Tr. 05/23 at 157:15 – 159:2. With the information he stole from ADI, Yu was able to launch a company that sold ADI's unique products to its own customers for Yu's own profit.

Given the quantity and quality of the information he stole, Yu was – not surprisingly – successful. In the 21 months between his first Tricon sale and his arrest, the defendant sold nearly 3,000 chips and grossed about \$235,000, all with minimal effort and while holding down a full-time job with another company.³ He sold ADI's chips throughout the United States and to companies in Turkey, Spain, and China. Exs. 47, 49, 51, 67, 68, 367 (lines 100 – 115). Additional inquiries arrived from Russia and India, among others. Exs. 78, 85. He designated distributors in

³ Trial exhibits and the loss hearing's Bank of America stipulation indicate that Tricon's business account received about \$281,348.25 from sources other than Yu and his wife. Exs. 389, "Sales" tab; 710. The government traces about \$236,373.25 of this to sales of chips powered by ADI's intellectual property. Therefore, the government requests a \$235,000 fine, which would effectively disgorge the defendant of these earnings.

The government recognizes that this fine is higher than the \$15,000 to \$150,000 fine suggested by U.S.S.G. § 5E1.2(c)(3). However, the Guidelines project that the high end of their range "will be at least twice the amount of gain or loss resulting from the offense." U.S.S.G. § 5E1.2, n. 4. When that is not true, the Guidelines state that an upward departure may be warranted. Such departure is warranted here because Yu's criminal gain far exceeds the Guidelines expectations. U.S.S.G. § 5E1.2(d)(1). In addition, Yu has the ability to pay, and a fine is likely a lighter burden for Yu and his dependents than a longer carceral term. U.S.S.G. § 5E1.2(d)(2)-(3). His restitution payment and any civil judgment he may face are as-yet uncertain. U.S.S.G. § 5E1.2(d)(4)-(5); PSR ¶ 7.

Israel, China, and Korea. Exs. 75, 87 at 1. He entertained business partnership inquiries and corresponded with an industry trade publication journalist who wanted more information about his new venture.⁴ Exs. 99, 101, 103, 104 at 1. He received praise from other companies, including an established microchip design firm, which told him that it was still “several years from developing the [microchips] you have.” Ex. 103. In particular, Yu’s knock-off versions of the 1022A, whose trade secret prototype design he stole, drew special interest from new customers. Ex. 84 at 1. Yu was able to sell this unique chip even before ADI, which rightfully owned it. Dkt. No. 348 at 11-14. In describing the chip, Yu told one of his prospective customers, “[Y]ou can hardly find anything in the market that matches our performance.” Ex. 60.

Yu also had a long-term vision for a company built on theft. He told a potential collaborator less than a year before his arrest, “Our initial goal is to stay independent and organic as long as possible.” Ex. 103. He told his manufacturer that he was “expecting to order” many thousands of chips per year “once we are on a steady pace.”⁵ Ex. 206 at 1. To that end, Yu was aggressive at creating a customer base that would buy his inventory. He contacted prospects, including ADI’s customers, “out of the blue” and prioritized those with “big potential.” Exs. 43, 54, 93. He negotiated prices. Ex. 56. He sent holiday emails. Ex. 86 at 3. He followed-up when sales didn’t work out. Ex. 87 at 4.

Yet from the very beginning, Yu knew that his actions were illegal. Attempting to conceal his crime – and knowing that his ADI network activities could be monitored by the company, Yu

⁴ Yu declined the journalist’s offer and said that, “for now, I just don’t want to draw too much attention from my competitors.” Ex. 99.

⁵ The defendant manufactured four wafers containing a total of 10,800 chips. Exs. 218; 226; 230; 234; 237. Therefore, each wafer holds about 2,500 chips. The defendant told his manufacturer that he aimed to order “a handful of wafers/year.” Ex. 206 at 1.

changed the names and extensions of ADI's proprietary files *before* removing them from ADI's network so that they would appear to be, for example, a photograph of children instead of a million-dollar collection of microchip designs.⁶ Yu made cosmetic and effectively inconsequential changes to the periphery of some of the ADI designs. *See, e.g.*, Exs. 638, 639, 640, Tr. 05/18 at 146:6 – 149:6. He also removed ADI's name and part numbers from the designs and replaced them with Tricon's. *See, e.g.*, Ex. 638. Later, as he prepared to roll out his fraudulent venture, Yu asked his friends to connect him with businesses that would be interested in Tricon parts but stressed, "I don't want to be noticed by the previous company. So keep this a secret for now." Ex. 370 at 293-313. That's why he was careful not to officially sell a chip until after July 31, 2017, when he resigned from ADI and was out of its daily sight. Ex. 282. In short, Yu knew that his theft and his use of ADI's proprietary information was wrong, yet he went ahead anyway.

Yu executed scores of transactions with ADI's stolen property. Ex. 389, "Sales" Tab. As just one example, in July 2017, while still working at ADI, Yu traveled to China to discuss providing ADI's stolen chips to Milliway, a Chinese chip designer and manufacturer. In a text message sent immediately after their meeting, Yu told Milliway's owner and general manager, "I can provide the datasheet and sample after August 1st." Ex. 368. Yu added a smiley-face emoji, an allusion to the unspoken fact that he was still employed by ADI and would not be resigning until July 31, 2017. Ex. 369. A week later, back home in the United States and having just received his first delivery of nearly 3,000 boosted chips, Yu wrote the Milliway owner again to ask, "Are you still interested? ... I will be free at the beginning of August." Exs. 218, 367. The day after his ADI resignation, the defendant mailed sample chips to Milliway. Ex. 368 at lines 1-18.

⁶ Yu changed the name of the ADI file "k8600.gds," which contained 16 prototype chip designs, to "kids8600.jpg," suggesting it was a photograph of children. Exs. 306, 308, 309.

Milliway proceeded to test his products. By November 2017, the defendant was asking whether Milliway's general manager would place an order, which he did. Ex. 367 at lines 231-253.

In conclusion, as indicated by the U.S. Senate report quoted above, Yu's conduct is exactly the kind that Congress intended to criminalize and punish: He was an employee who fleeced a U.S. company of its valuable intellectual property and then used it against the company, in this case by selling chips both domestically and internationally in a manner that the property owner could not control. ADI had invested more than fifteen years of work and millions of dollars in the intellectual property that Yu pocketed. By stealing this information, Yu – and anyone else to whom he provided the information – avoided the same time and expense that ADI had incurred. Moreover, given its military and technical nature, Yu did this with technology that is not only valuable to ADI but also important to the national security interests of the United States. The defendant's conduct is criminal, egregious, and worthy of weighty punishment.

III. GOVERNMENT'S SENTENCING RECOMMENDATIONS

A. Sentencing Guidelines Calculations

The Supreme Court has declared: "As a matter of administration and to secure nationwide consistency, the Guidelines should be the starting point and the initial benchmark." *Gall v. United States*, 128 S. Ct. 586, 596 (2007). Thus, the Sentencing Guidelines remain an indispensable resource for assuring appropriate and uniform punishment for federal criminal offenses.

In this case, the defendant's Sentencing Guidelines calculations begin as a level 6, the base offense level for possessing a stolen trade secret. PSR ¶ 23; U.S.S.G. § 2B1.1(a)(2). The defendant is also properly credited with several enhancements. First, he receives a two-level increase for transmitting his stolen trade secret out of the United States – namely, for sending the trade secret design to Taiwan, where a foundry unwittingly used it to manufacture stolen microchips for him.

PSR ¶ 25; Exs. 220; 221; U.S.S.G. § 2B1.1(b)(14)(A). Second, he receives another two-level increase because he used a special skill to conceal his offense. PSR ¶ 27; U.S.S.G. § 3B1.3. As just one example, the defendant used his microchip design skills to remove ADI's logo and part number from their chip design and to insert Tricon's logo and part number. Exs. 331; 332; 335 at 1. This was a blatant effort to conceal the fact that the intellectual property employed by the Tricon design belonged, in fact, to ADI and, thus, to conceal the defendant's illegal possession of it.

Third, the defendant's Guidelines are increased in proportion to the loss he inflicted upon ADI. This court has previously found beyond a reasonable doubt that ADI's loss was no less than \$45,000 and no greater than \$450,000.⁷ Tr. 02/14 at 28:12-13. The government relies on its previous briefing to demonstrate the appropriateness of the \$450,000 figure, which conservatively approximates the loss the defendant purposely sought to inflict as measured not only by what ADI invested to develop the 1022A design but also – completely separately – by Tricon's expected gross income from the chips Yu manufactured with that stolen trade secret. Dkt. Nos. 321, 348. That these independent loss calculations yield such similar figures – about \$660,000 each – demonstrates the accuracy and the reasonableness of using the \$450,000 loss amount in the court's calculations. According to the Guidelines, a loss of more than \$250,000 and less than \$550,000 results in offense level increase of 12. PSR at n. 2; U.S.S.G. § 2B1.1(b)(1)(G).

In sum, Yu's total offense level is 22, which corresponds to a Guidelines sentencing range of 41 to 51 months. Note that this calculation depends in no way on the indictment counts of which the defendant was acquitted. Nevertheless, here, the government recommends a slightly below-Guidelines prison sentence of 30 months, restitution, and a fine that disorges Yu of his

⁷ The government submits that Guidelines enhancements are properly found under a preponderance standard, U.S.S.G. § 6A1.3, cmt., but acknowledges the practice of this court.

unjust revenues. The combination of these financial repayments and the prison sentence will address the severity of Yu's offense and the other § 3553(a) factors, some of which weigh partially in his favor, while also being no greater than necessary to accomplish the goals of that statute.

B. 3553(a) Factors

This Court must also examine the sentencing considerations set forth in Section 3553(a). Those factors include: (1) the nature and circumstances of the offense and the history and characteristics of the defendant; (2) the need for the sentence imposed to reflect the seriousness of the offense, to promote respect for the law, and to provide just punishment for the offense; (3) the need to afford adequate deterrence to criminal conduct, and to protect the public from further crimes of the defendant; (4) the need to provide the defendant with educational or vocational training, medical care, or other correctional treatment in the most effective manner; (5) the guidelines and policy statements issued by the Sentencing Commission; (6) the need to avoid unwarranted sentence disparities among defendants with similar records who have been found guilty of similar conduct; and (7) the need to provide restitution to any victims of the offense.¹⁸ U.S.C. § 3553(a). The relevant 3553 factors will be discussed in turn.

1. The nature and circumstances of the offense.

Yu committed an egregious offense when he designed and executed a plan to steal and profit from ADI's trade secret. In and of itself, his conviction for possessing a stolen trade secret is serious. However, several aggravating circumstances make the crime even more flagrant.

First, the court must consider that Yu did not merely possess one stolen trade secret. The facts demonstrate that he stole and then illegally possessed at least hundreds of other proprietary files containing various kinds of ADI intellectual property. These weren't theoretical papers about microchips or background materials. They were design files, modeling files, layout files,

schematic files, customer lists, and order histories. They were entire product lines on which Yu had never worked and some of which had military applications. They were the sum of thousands of hours and millions of ADI dollars spent on research and design. While the government respects the jury's acquittals of many charges in this case, it is undisputed that the defendant robbed ADI of an enormous cache of valuable information and that he did so for a specific, rather ignoble purpose: monetizing that information for his own pecuniary benefit. The defendant's own statements reveal that Yu planned to continue profiting from ADI's property "for as long as possible." Ex. 103. But for his arrest, therefore, the defendant likely would have continued for the foreseeable future to profit at ADI's expense. The magnitude of the defendant's theft was tremendous and should be considered an aggravating factor justifying the government's recommended sentence.

Second, it is important to acknowledge the nature of the trade secret Yu stole and then illegally possessed. It wasn't a widget; it was military-grade technology used in satellites, radar, and missile defense. Yu clearly knew that ADI was a defense contractor cleared for classified projects, just as he knew that many of his stolen files had potential military applications. He advertised his chips' military nexus on his website, in a photo on his LinkedIn page, and in his conversations with prospective customers. Exs. 81, 82, 106, 109.⁸ He received inquiries about military and space products. Exs. 78, 102. He knowingly sold his stolen chips to the Turkish military for its electronic warfare and defense systems. Ex. 41.

Moreover, he discussed future possibilities for his work in military chip technology with two friends in June 2017, after he had completed his theft of ADI's information, including the

⁸ The defendant wrote, "As a side note, two of our parts just recently won production slots with a major defense contractor." Ex. 81 at 1. He also wrote, "TM5011 and TM5059 are being built in hundreds and shipped to major defense contractors as end customers." Ex. 82 at 1.

blueprints for several military-appropriate products. Ex. 371. His friends suggested that he “return to China and start a business.” Ex. 371 at line 88. One of his friends stressed that his experience with military products was “of national interest.” Ex. 371 at line 86. Yu agreed, writing, “Yes, when I am ready, I will definitely return to serve the country.” Ex. 371 at line 91. The trio mentioned the possibility of a military-civil partnerships. Ex. 371 at line 93. “High performance chips can only realize their value in military applications,” one friend said. Ex. 371 at line 93. The defendant agreed, saying, “Then, I can really have at it. [grin] … It is very limiting to do civil applications.” Ex. 371 at lines 95-97. The group continued to discuss the fact that China’s military research institutes have good funding and were mainly relying upon reverse engineering to design high-performance chips, whose blueprints the defendant had and whose export the U.S. government tightly controls. Ex. 371 at lines 121-125. One friend explained the strong demand for these chips by calculating that hundreds were needed for each Chinese missile and that each Chinese military airplane carried eight missiles. Ex. 371 at line 119. “If you come back to start a business in the future, there will be many opportunities in China,” he added. Ex. 371 at 122. In the end, the defendant wrote that it was “[t]oo early to talk about development.” Ex. 371 at line 284. He added that, at the moment, he had “a few small customers in the U.S.” and wanted to “just play around and make a living.” Ex. 371 at line 283. Nevertheless, these facts demonstrate the value of military-grade information overseas. They also allude to the risks posed when this kind of information is possessed by someone who obtained it illegally and, thus, removed both its rightful owner and the United States government from its necessary oversight. Put bluntly, the

military applications of ADI's stolen information are aggravating, because, unlike many other trade secrets, they implicate national security interests.⁹

In conclusion, the nature and circumstances of this offense demand a substantial punishment. Yu's criminal conduct was extensive and brazen. As the Senate Report makes clear, Yu's type of crime is damaging to U.S. companies, to our economy, and to our national security interests. These factors, coupled with the overall magnitude of the defendant's theft, counsel in favor of a significant punishment.

2. The history and characteristics of the defendant.

Yu's history and characteristics also support a 30-month sentence and a significant fine. Yu received a bachelor's degree in Engineering Physics from Tsinghua University, widely considered one of the world's best engineering schools.¹⁰ PSR ¶ 62. He then received a graduate engineering degree from the University of Massachusetts at Amherst and began working for United States companies that design and manufacture microchips. PSR ¶¶ 62, 69-70. ADI was paying the defendant about \$170,000 a year at the time he put his criminal scheme in motion. PSR ¶ 54. Much of Yu's criminal conduct was committed from his home, a million-dollar property

⁹ The geo-political environment in which Yu committed his crime should not be ignored. In the last ten years, science and technology have re-emerged as key national security priorities. The United States faces threats from foreign adversaries who are reducing the U.S.'s technical lead in microchip design. Progress in chip manufacturing is now likened to a 21st-century arms race. Concern about national vulnerabilities in this regard recently led the United States to codify a \$280-billion bill designed to secure the supply of next-generation microchips for computers and artificial intelligence platforms and to fuel the future of quantum computing. See David E. Sanger, "China Has Leapfrogged the U.S. in Key Technologies. Can a New Law Help?" *The New York Times*, July 28, 2022, available at <https://www.nytimes.com/2022/07/28/us/politics/us-china-semiconductors.html>.

¹⁰ See, e.g., Times Higher Education ranking Tsinghua University as the top college in Asia and as offering the world's 15th-best program in engineering sciences, available at <https://www.timeshighereducation.com/world-university-rankings/tsinghua-university>.

that he owns without a bank mortgage in an upscale Boston suburb. PSR ¶¶ 54, 75. It was from there that he built a fraudulent business using the military-grade trade secret and other intellectual property he stole from his employer, who had expended time, labor, and talent to develop their competitive advantage. PSR ¶¶ 54, 69.

-The government recounts these facts to emphasize that, unlike so many defendants, Yu was a man with viable options: Yu is well-educated in a highly technical and desirable field. He made a healthy income and continues to live in one the country's most desirable communities. He has a family and was active in his community. And yet, for Yu, this wasn't enough. He wanted more than he had earned. His crime was one of greed. He chose it, fully aware that he was betraying the trust of his employer and the laws of his country. The defense will ask that these crimes be excused. Instead, the government submits that Yu's criminal choice, motivated entirely by avarice, not desperation, should have significant criminal consequences. *See United States v. Stefonek*, 179 F.3d 1030, 1038 (7th Cir.1999) ("Criminals who have the education and training that enables [them] ... to make a decent living without resorting to crime are more rather than less culpable than their desperately poor and deprived brethren in crime.")

3. The need for the sentence imposed to reflect the seriousness of the offense, to promote respect for the law, and to provide just punishment for the offense.

In this case, there is a great need for the sentence to promote respect for the law and to reflect the seriousness of the offense. The parties have vastly different views on this issue. The government contends that the defendant's crimes are significant and consequential, not only because of the scale of the theft but also because of the nature of what Yu stole, including valuable intellectual property at least some of which has military application and all of which belongs to a U.S. company working at the cutting edge of a critical industry.

In contrast, Yu apparently believes that he did nothing wrong and that, if he did, it was of little or no significance. Yu has described himself as “a striving immigrant” and his fraudulent business as “a startup company in the shadow of big business.” Tr. 05/25 at 121:13-14. He has repeatedly insisted that his case should have been handled as a civil, not a criminal, matter. “[Y]es, he had some files on his computer that should have been deleted … But is it really proof of a federal crime?” his attorney argued at trial. Tr. 05/25 at 95:2-8, 14. But that is exactly the point: Yes, Yu’s multi-million-dollar theft was a crime, and it was a crime for good reason. As the Senate Report alludes, Yu violated a statute that exists specifically to promote innovation, not his stealing of it. The law is designed to protect and to encourage people like Yu’s former ADI colleagues, who – unlike Yu – invent sophisticated chip designs, tools, and technologies and who testified about the commitment it takes to do so. *See, e.g.*, Tr. 05/17 at 87:14 – 92:14 (Dr. Mikael Garcia describing his work, ongoing since 2009, to develop Model Express); Tr. 06/20 at 165:12 – 168:2 (Dr. Song Lin stating that designing the HMC906A required an entire year of his working time); 05/24 at 12:15 – 16:22 (John Mahon describing his invention of the non-linear Angelov model and its utility). This court should impose a significant sentence that demonstrates the seriousness of Yu’s crime, justly punishes that offense, and promotes Yu’s respect for the law.

4. The need to afford adequate deterrence to criminal conduct and to protect the public from further crimes of the defendant.

There is also a particularly strong need for general deterrence in this case. Illegal trade secret theft and possession are deliberate, premeditated crimes and, thus, absolutely deterrable. *See United States v. Kuhlman*, 711 F.3d 1321, 1329 (11th Cir. 2013) (“Because economic and fraud-based crimes are more rational, cool and calculated than sudden crimes of passion or opportunity, these crimes are prime candidates for general deterrence.”) Here, the court should take the opportunity to deter others because of the harm illegal trade secret possession is having

on our country and economy, as the Senate Report describes. The prospect of 30 months in jail is likely to affect the calculus of other white-collar workers in the microchip and similar industries who could be lured to engage in these crimes. Conversely, these workers may be tempted to commit trade secret crimes if Yu receives a lenient sentence – especially after, as here, the evidence in a widely-publicized trial incontrovertibly showed that Yu stole hundreds of intellectual property files, including at least one trade secret with sensitive military applications; appropriated this property for himself; opened a business; marketed chips to a foreign competitor; sold them domestically and internationally; and made hundreds of thousands of dollars. The court should impose a substantial sentence to effectively deter this criminal conduct from Yu and others.

5. The need to avoid unwarranted sentence disparities among defendants with similar records who have been found guilty of similar conduct.

The government's recommendation has been calibrated with sentences imposed in similar white collar and trade secret cases nationwide and, thus, would avoid unwarranted sentencing disparities. For example, the Judiciary Sentencing Information database provides the following information for non-cooperating defendants, like Yu, whose Guidelines are calculated under U.S.S.G. § 2B1.1. It shows that, in the last five fiscal years, almost all defendants fitting this description received prison sentences and that about one-third of those prison sentences were within the defendants' Guidelines ranges.

	Suggested Guidelines Range for U.S.S.G. § 2B1.1 Defendants who are Not Receiving Cooperation Credit
Receiving Prison	96%
Receiving Guidelines Sentence	33%
Median Imprisonment	36 months

Here, sentencing the defendant to 30 months in prison would be lower than the median term imposed in other §2B1.1 cases with similar Guidelines calculations. The government submits that, in combination with other financial penalties, such a sentence would account for all 3553(a) factors, including the aggravating nature and circumstances of this crime, as described above, and other factors that are more favorable to the defendant, while not being greater than necessary to accomplish the goals set out by that statute.¹¹

A 30-month sentence would also comport with other trade secret cases nationwide. Indeed, in preparing its recommendation, the government surveyed the sentences of trade secret defendants indicted in the last five years. We restricted our search to cases in which defendants, like Yu, were ultimately convicted of violating 18 U.S.C. § 1832, either by plea or at trial. While the government cannot unequivocally assert that it captured every case fitting this description, it made a good-faith effort to do so. The resulting data are presented in Exhibit 1, which shows that almost all defendants received custodial sentences ranging up to 70 months. In other words, a sentence of 30 months here would not be an outlier even for crimes in the trade secret realm; it would be consistent with them. Moreover, a substantial sentence is warranted, and in combination with other financial penalties, 30 months is appropriate when considering the all of the relevant factors and circumstances presented by this case.

6. Restitution

The Mandatory Victims Restitution Act, 18 U.S.C. § 3663A, et seq. (MVRA), governs sentencing in this case. Congress enacted this statute, for convictions occurring after its effective

¹¹ Given the court's loss finding, the defendant's lowest possible Guidelines range is 21 to 27 months in custody. PSR at 21. The Judiciary Sentencing Information database similarly shows that analogous defendants facing that carceral range also received prison 87 percent of the time and a Guidelines sentence 32 percent of the time. The median imprisonment term is 15 months, a sentence too short to address the facts and circumstances of this case.

date, April 24, 1996, in response to the deficiencies on the law of restitution in prior legislation and in the Supreme Court’s decision in *Hughey v. United States*, 495 U.S. 411 (1990).

The MVRA specifically directs the court to order a defendant to make restitution to the victims of the offense. Restitution for victims of fraud is mandatory. *See Lagos v. United States*, 138 S. Ct. 1684, 1687 (2018) (“The Mandatory Victims Restitution Act is one of several federal statutes that govern federal court orders requiring defendants convicted of certain crimes to pay their victims restitution.”) The court must order the defendant to pay restitution “in the full amount of each victim’s losses.” 18 U.S.C. § 3664(f)(1)(A). “The purpose of restitution under the MVRA is to compensate the victim for its losses and, to the extent possible, to make the victim whole.” *United States v. Diaz*, 245 F.3d 294, 312 (3d Cir.2001). The MVRA defines “victim” as “a person directly and proximately harmed as a result of the commission of an offense.” 18 U.S.C. § 3663A(a)(2). The government bears the burden to prove by the preponderance of the evidence “the amount of the loss sustained by a victim as a result of the offense.” 18 U.S.C. § 3664(e). “Any dispute as to the proper amount or type of restitution shall be resolved by the court by the preponderance of evidence.” *Id.*

Because Yu was convicted of a Title 18 offense against property and involving fraud, the court must require the defendant to pay restitution consistent with the First Circuit’s decision in *In re Akebia Therapeutics, Inc.*, 981 F.3d 32, 38 (1st Cir. 2020). In that case, the court affirmed a restitution award for the costs an employer necessarily incurred in response to the government’s criminal investigation of insider trading by one of the company’s employees. The First Circuit recognized that “determining an award of restitution is a fact-specific undertaking and will vary case-by-case” and that the district court has the discretion to determine, for each case, which expenses were necessary and foreseeable, and therefore reimbursable.” *Id.* at 39. Here, having

been repeatedly advised that ADI sought to protect its intellectual property and that mishandling this information could result in criminal prosecution, the defendant could reasonably foresee that ADI, beginning in 2019, would have to employ counsel to produce documents, prepare witnesses, advise witnesses, and discuss the case with federal authorities investigating his massive intellectual property theft. *See, e.g.*, Exs. 270, 274, 275, 276, 282, 290.¹² Such categories of expense are reasonable. Moreover, ADI's willingness to engage with and to cooperate with a federal criminal investigation has the salutary effect of reducing cost by allowing the government to avoid having to take formal testimony in the grand jury. Accordingly, the defendant should pay restitution that the Court determines is reasonable after reviewing ADI's expenses.

ADI wishes to incorporate the costs of representation at sentencing, as is its right. *See United States v. Gupta*, 925 F. Supp. 2d 581, 585 (SDNY 2013) ("The Court also finds that legal fees incurred by [a corporate victim] to attend this post-verdict restitution proceeding are recoverable under the statute."); *United States v. Napout*, 2018 WL 6106702 at *4 (EDNY Nov. 20, 2018) (awarding restitution for preparing the restitution request). The government understands from ADI's counsel that it will file a redacted line-item detail to support its claim for restitution and that it can provide an unredacted line-item detail to the court directly for in camera review. Unfortunately, this tabulation cannot be finalized prior to the sentencing date. However, the court can order restitution in an amount to be determined at a later date, defer ruling on restitution for 90 days, or both. *Dolan v. United States*, 560 U.S. 605 (2010); 18 U.S.C. § 3664(d)(5) ("If the victim's losses are not ascertainable by the date that is 10 days prior to sentencing, the attorney for

¹² ADI's Code of Business Conduct and Ethics, which Yu reviewed, states, that ADI may be required to refer some code violations "to the appropriate authorities for criminal prosecution." Ex. 274 at 12. ADI's Information Classification Policy, which Yu also reviewed, specifically states, "Users who do not comply with the ADI Information Classification Policy ... may be subject to civil liability and criminal prosecution." Ex. 276 at 4.

the Government or the probation officer shall so inform the court, and the court shall set a date for the final determination of the victim's losses, not to exceed 90 days after sentencing.”) The government recommends that the court take one of these actions here.

IV. CONCLUSION

The government’s sentencing recommendation is rooted in Yu’s deliberate criminal conduct, designed to reap at least hundreds of thousands of dollars in profits from valuable intellectual property that rightfully belongs to his former employer. A 30-month prison sentence, a \$235,000 fine, and a restitution payment are all just punishment for Yu’s blatant possession of ADI’s stolen trade secret and related intellectual property. The government respectfully requests that this court impose the sentence described.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that this document filed through the ECF system will be sent electronically to the registered participants as identified on the Notice of Electronic Filing (NEF) and paper copies will be sent to those indicated as non-registered participants .

/s/ Amanda Beck
Amanda Beck
Assistant United States Attorney

Date: May 26, 2023